USDA United States Department of Agriculture

Residue and Tillage Management, Reduced Till

Wisconsin Job Sheet 345

Definition

Managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year round while limiting the soil-disturbing activities used to grow and harvest crops in systems where the entire field surface is tilled prior to planting.

Purpose

- Reduce sheet, rill, and wind erosion and excessive sediment in surface water.
- Reduce tillage-induced particulate emissions.
- Improve soil health and maintain or increase organic matter content.
- Reduce energy use.

Practice Information

This practice includes tillage methods commonly referred to as mulch tillage where a majority of the soil surface is disturbed by non-inversion tillage operations such as vertical tillage, chiseling, and disking, and also includes tillage/planting systems with relatively minimal soil disturbance.

Mulch tillage includes the uniform spreading of residue on the soil surface, planning the number, sequence, and timing of tillage operations to achieve the prescribed amount of surface residue needed and using planting equipment designed to operate in high residue situations.

This practice benefits soil by increasing organic matter, improving soil tilth, and increases productivity as the constant supply of organic material left on the soil surface is decomposed by a healthy population of earth worms and other organisms.

Operations and maintenance for this practice includes evaluating the crop residue cover and orientation for each crop to ensure the planned amounts, orientation, and benefits are being achieved.

Where practice applies

This practice applies to all cropland.

Plans and Specifications

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit. Record the following as documentation:

1. Resource concern to be treated or the purpose for applying the practice.
2. Location map with planned crops identified.
3. Summary of all field operations or activities that affect:
    - Amount of residue produced for each crop
    - Amount of residue cover with all field operations reflected
    - Residue orientation
    - Disturbance of the soil surface including all disturbances
4. The amount of residue (pounds/acre or percent surface cover) required to accomplish the planned purpose, and the time of year it must be present.
5. The maximum STIR value allowed to accomplish the planned purpose, and the time of year soil disturbance is allowed.
6. The minimum Soil Conditioning Index (SCI) value required to accomplish the purpose.
7. Erosion rate.
8. Benchmark and planned energy consumption.

Operation and Maintenance

Evaluate/measure the crop residues cover and orientation for each crop to ensure the planned amounts and orientation are achieved.

Adjust management as needed to either plan a new residue amount or orientation, or adjust the planting, tillage, or harvesting equipment.

If there are areas of heavy residue accumulation (because of movement by water or wind) in the field, spread the residue prior to planting so it does not interfere with planter operation.

Residue and Tillage Management, Reduced Till Documentation Worksheet

Client Name _____ Planner Name _____

Farm Number _____ Tract Number _____

Practice Purpose (check all that apply)

- ☐ Reduce sheet, rill, and wind erosion and excessive sediment in surface water.
- ☐ Reduce tillage-induced particulate emissions.
- ☐ Improve soil health and maintain or increase organic matter content.
- ☐ Reduce energy use.

TABLE 1: SPECIFICATIONS AND APPLICATION RECORD

Tract/ Field	Crop to be planted	Previous Crop Residue	Orientation – Standing or Flat (S or F)	Height (inches)	Critical Season(s)	Row Width (inches)	Percent Residue Cover or Pounds		SCI	STIR
							Planned	Applied		

Notes:

*STIR Below 80

Project Job Approval Class _____

Design Approval

Designed By: Date:

Approved By: Date: Job Approval Authority:

Client Acceptance

I have reviewed and understand the implementation requirements and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these implementation requirements must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with contractors.

Signature: Date:

Installation and Certification

The installed practice meets NRCS technical standards and specifications. The "redlined" information reflects any changes made during installation of the practice.

Printed Name: Date:

Title: Job Approval Authority:

Signature: Date:

Notes: